

PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Improvements in and relating to Antisunburn Preparations.

We, MILTON ANTISEPTIC LIMITED, of John Milton House, London, N.7, a Company registered under the laws of Great Britain, and PHILIP ARTHUR LINCOLN, of 16, Cheyne Avenue, Woodford, London, E.18, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to the manufacture of antisunburn preparations of the kind which contain triethanolamine salicylate in a suitable vehicle, to act as a filter for the rays from wave-lengths 2900 to 3200 Angström units.

The object of the invention is to provide an antisunburn preparation, which shall also tend to promote pigmentation to a substantial extent, that is to say, to provide a preparation, which shall have both antisunburn and also suntanning properties.

It is known that in order to promote maximum pigmentation, an antisunburn preparation should have a pH which is either neutral or slightly alkaline. Heretofore, triethanolamine salicylate antisunburn preparation has been employed with a pH of approximately 6, which does not afford optimum conditions for the formation of suntan as opposed to the prevention of sunburn.

It has been shown that, whereas the absorption of the rays of wave-length 2900-3200 Å does not vary significantly with the pH of the medium, triethanolamine salicylate can be used in a vehicle, which gives a preparation lying well on the alkaline side of neutrality, thereby permitting both antisunburn and suntan properties to be secured in one composition, the various ingredients of which may of themselves be known, or in other or sub-combination, but not in the specific combinations referred to below, to which the present invention is limited, the features essential to the invention being the combination of

- (a) Triethanolamine salicylate;
- (b) A gelatinous or mucilaginous vehicle for the same;
- (c) An astringent, for example witch hazel;
- (d) A humectant, for example glycerol;
- (e) A control for the pH values to adjust that value to between 7 and 8 with-out an unreasonable quantity of the addition.

The invention also consists in a process for the manufacture of an antisunburn and suntan preparation comprising the incorporation with a gelatinous or mucilaginous vehicle, or colloidal vehicle, for example sodium alginate, or gum tragacanth, an astringent, for example witch hazel, a humectant, for example glycerol, and triethanolamine salicylate and an alkali or base to increase the pH value to between 7 and 8.

The invention also consists in an antisunburn and suntan preparation comprising the following substances within the ranges of proportions stated, namely:—

Sodium alginate ...	1.0—5%
Witch hazel B.P. ...	5—10%
Glycerol ...	5—25%
Triethanolamine salicylate ...	5—10%

with other additions as desired, and water to make the total 100%, the hydrogen ion concentration of the mixture being adjusted by an alkali or base, for example triethanolamine so that a 10% aqueous solution of the preparation has a pH value 7-8.

The invention also consists in processes for the manufacture of an antisunburn and suntan preparation substantially as herein described.

The invention further consists in substances including lotion, cosmetic cream and like antisunburn and suntan preparations substantially as herein described, or prepared in accordance with any of the four preceding paragraphs.

In carrying the invention into effect in

one form by way of example, we compound together the following substances in the proportions mentioned:—

	Sodium alginate	2.0%
5	Calcium salt (to thicken sodium alginate)	q.s.
	Witch Hazel B.P.	6.5%
	Glycerol	15.0%
	Triethanolamine salicylate	8.5%
10	Colour, Perfume	q.s.
	Water to	100.0%
	Triethanolamine to adjust pH of a 10% aqueous solution of final preparation to pH 7-8: q.s.	

GENERAL.

The use of alginate jelly as opposed to a common vehicle such as a simple solution or incorporation into a vehicle of proper consistency prepared by suitably mixing oils, fats, waxes, and the like, possesses a great advantage, since a thicker film of the preparation is produced on spreading on the skin in the case of the alginate jelly than with any other vehicle. This enables a reduction to be made in the amount of triethanolamine salicylate in the preparation and, as a result, allows readier adjustment of the pH.

The inclusion of the humectant together with an astringent has been discovered to maintain the efficiency of the triethanolamine salicylate for the maximum period of time without deterioration in protective effect against the rays of wave-length 2900-3200 Å, while at the same time maintaining the optimum conditions for the

formation of skin pigment—i.e., suntan.

The astringent prevents excessive sweating which may not only tend to reduce the pH of the preparation below the optimum limit for tan formation, but, in the case of application in common types of vehicle, may cause uneven distribution of the thin layer of the preparation which is necessary for efficient sunburn protection.

Since it is known that pigmentation occurs more readily when the skin is moist as opposed to dry, the loss in moisture on the surface of the skin occasioned by the use of the astringent is compensated and in many cases improved by the incorporation of a suitable humectant such as glycerol.

A further advantage presented by this type of preparation as compared with preparations of triethanolamine salicylate incorporated in common vehicles, is that absorption of the active ingredient by the skin is minimised; and hence the naturally low irritancy of triethanolamine salicylate, as compared with other salicylic esters, such as phenyl salicylate is reduced still further, at the same time prolonging the period of effectiveness of a single application of the antisunburn preparation since normally absorption by the skin reduces the effectiveness of the ultraviolet filter employed.

Dated this 8th day of January, 1947.

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COMPLETE SPECIFICATION.

Improvements in and relating to Antisunburn Preparations.

We, MILTON ANTISEPTIC LIMITED, of John Milton House, London, N.7, a Company registered under the laws of Great Britain, and PHILIP ARTHUR LINCOLN, of 16, Cheyne Avenue, Woodford, London, E.18, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the manufacture of anti-sunburn preparations of the kind which contain triethanolamine salicylate in a suitable vehicle, to act as a filter for the rays from wave-lengths 2900 to 3200 Angström units.

The object of the invention is to provide an anti-sunburn preparation, which shall also tend to promote pigmentation to a substantial extent, that is to say, to provide a preparation which shall have both anti-sunburn and also suntanning properties.

It is known that in order to promote maximum pigmentation, an anti-sunburn preparation should have a pH which is either neutral or slightly alkaline. Heretofore, triethanolamine salicylate anti-sunburn preparation has been employed with a pH of approximately 6, which does not afford optimum conditions for the formation of suntan as opposed to the prevention of sunburn.

It has been shown that, whereas the absorption of the rays of wave-length 2900-3200 Å does not vary significantly with the pH of the medium, triethanolamine salicylate can be used in a vehicle, which gives a preparation lying well on the alkaline side of neutrality, thereby permitting both anti-sunburn and suntan properties to be secured in one composition, the various ingredients of which may of themselves be known, or in other or sub-combination, but not in the specific combinations referred to below, to which the present invention is limited.

The invention consists in an anti-sunburn and suntan preparation having the following components in combination, namely:—

- 5 (a) Triethanolamine salicylate;
- (b) A gelatinous or mucilaginous vehicle for the same;
- (c) An astringent, for example witch hazel extract;
- 10 (d) a humectant, for example glycerol;
- (e) a substance to adjust the pH to 7 to 8.

The invention also consists in a process for the manufacture of an anti-sunburn and suntan preparation comprising the incorporation with a gelatinous or mucilaginous vehicle, or colloidal vehicle, for example an aqueous solution or suspension of sodium alginate or of gum tragacanth, an astringent, for example witch hazel extract, a humectant, for example glycerol and triethanolamine salicylate and an alkali or base to increase the pH value to 7 to 8.

25 The invention also consists in an anti-sunburn and suntan preparation comprising the following substances within the ranges of proportions stated, namely:—

Sodium alginate ...	1.0—5%
30 Witch Hazel (Extractum Hammamelidis Liquidum B.P. 1932) ...	5 —10%
Glycerol ...	5 —25%
Triethanolamine salicylate ...	5 —10%

35 with if desired the addition of incidental ingredients common in cosmetic and pharmaceutical preparations of this type, for example perfumes, dyes, pigments, insect repellents or the like, and water to make 40 the total 100%, the hydrogen ion concentration of the mixture being adjusted by an alkali or base, for example triethanolamine so that a 10% aqueous solution of the preparation has a pH value 7—8.

45 The invention also consists in processes for the manufacture of anti-sunburn and suntan preparations, which terms in this specification include lotions, cosmetic creams and like anti-sunburn and suntan 50 preparations, substantially as described below.

In carrying the invention into effect in one form by way of example, we compound together the following substances in the 55 percentages by weight mentioned:—

Sodium alginate ...	2.0%
Calcium Chloride (to thicken sodium alginate) ...	q.s.
60 Witch hazel (Extractum Hammamelidis Liquidum B.P. 1932) ...	6.5%
Triethanolamine salicylate ...	8.5%
Colour, Perfume or incidental ingredients as above ...	q.s.
Water to ...	100%
65 Triethanolamine to adjust pH of	

a 10% aqueous solution of final preparation to pH 7—8 ... q.s.

GENERAL

The use of alginate jelly as opposed to a common vehicle such as a simple solution, 70 or incorporation into a vehicle of proper consistency prepared by suitably mixing oils, fats, waxes and the like, possesses a great advantage, since a thicker film of the preparation is produced on spreading on 75 the skin in the case of the alginate jelly than with most other vehicles. This enables a reduction to be made in the amount of triethanolamine salicylate in the preparation and, as a result, allows readier 80 adjustment of the pH.

The inclusion of the humectant together with an astringent has been discovered to maintain the efficiency of the triethanolamine salicylate for the maximum period 85 of time without deterioration in protective effect against the rays of wave-length 2900—3200 Å, while at the same time maintaining the optimum conditions for the formation of skin pigment—that is 90 suntan.

The astringent prevents excessive sweating which may not only tend to reduce the pH of the preparation below the optimum limit for tan formation, but, in the case of 95 application in common types of vehicle, may cause uneven distribution of the thin layer of the preparation which is necessary for efficient sunburn protection.

Since it is known that pigmentation occurs more readily when the skin is moist 100 as opposed to dry, the loss in moisture on the surface of the skin occasioned by the use of the astringent is compensated and in many cases improved by the incorporation 105 of a suitable humectant such as glycerol.

A further advantage presented by this type of preparation as compared with preparations of triethanolamine salicylate incorporated in common vehicles, is that absorption of the active ingredient by the skin is minimised; and hence the naturally low irritancy of triethanolamine salicylate, as compared with other salicylic esters, 115 such as phenyl salicylate is reduced still further, at the same time prolonging the period of effectiveness of a single application of the anti-sunburn preparation since normally absorption by the skin reduces 120 the effectiveness of the ultraviolet filter employed.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to 125 be performed, we declare that what we claim is:—

1. An anti-sunburn and suntan preparation having the following components in combination, namely:—

130

- (a) Triethanolamine salicylate;
 (b) Agelatinous or mucilaginous vehicle for the same;
 5 (c) An astringent, for example witch hazel extract;
 (d) a humectant, for example glycerol;
 (e) a substance to adjust the pH to 7 to 8.
2. A process for the manufacture of an
 10 anti-sunburn and suntan preparation comprising the incorporation with a gelatinous or mucilaginous vehicle, or colloidal vehicle, for example an aqueous solution or suspension of sodium alginate or of gum
 15 tragacanth, an astringent, for example witch hazel extract, a humectant, for example glycerol, and triethanolamine salicylate and an alkali or base to increase the pH value to 7 to 8.
- 20 3. An anti-sunburn and suntan preparation comprising the following substances within the percentages by weight stated.

namely:—

Sodium alginate	1.0— 5%	
Witch Hazel (Extractum Hammamelidis Liquidum B.P. 1932)	5 —10%	25
Glycerol	5 —25%	
Triethanolamine salicylate	5 —10%	

with if desired the addition of incidental 30 ingredients common in cosmetic and pharmaceutical preparations of this type, for example perfumes, dyes, pigments, insect repellents or the like, and water to make the total 100%, the hydrogen ion concentration of the mixture being adjusted by an alkali or base, for example triethanolamine so that a 10% aqueous solution of the preparation has a pH value of 7 to 8.

4. Processes for the manufacture of an 40 anti-sunburn and suntan preparation substantially as described above.

Dated this 8th day of January, 1948.
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